

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 06-255873

(43)Date of publication of application : 13.09.1994

(51)Int.Cl.

B65H 35/07

B29C 63/02

B65B 41/04

B65B 61/06

(21)Application number : 04-353234

(71)Applicant : NITTO DENKO CORP
KANSAI PAINT CO LTD

(22)Date of filing : 10.12.1992

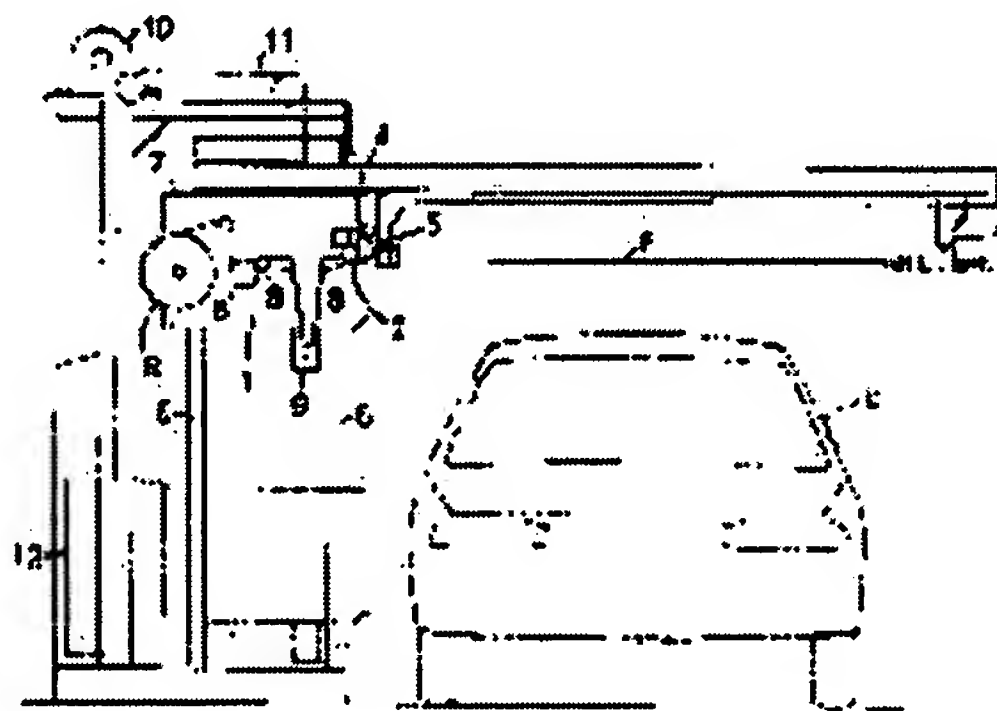
(72)Inventor : ARAGAKI NOBORU
TERASAWA HIDEO

(54) DEVICE FOR STICKING PROTECTING FILM ONTO VEHICLE OR THE LIKE

(57)Abstract:

PURPOSE: To easily add quickly process a protecting film pasted up high efficient ly on a car body by drawing out the protecting film cut, and lowering down the cut protecting film with tension.

CONSTITUTION: First a protecting film F of a main roll R is drawn out and set so as to hold its point end to a film holding mechanism 2. Next, the held film F is drawn out to a specific position to run by supporting the point end of the film F by a film draw out mechanism 4. Next, the drawn out film, in a condition that fixed by a film holding mechanism 2, is supported to a film supporting transfer feed mechanism 5, to cut the film F by actuating a cut mechanism 3. Then, the film draw out mechanism 4 and the film supporting transfer feed mechanism 5 are synchronously advanced, moved to an upper position of a car body C, previously waiting in the specific position, and actuated to lower down after confirming positioning, to stick the protecting film, provided with tension between both itself and the car body, onto a roof or bonnet of the car body.



LEGAL STATUS

[Date of request for examination]

10.12.1992

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

BEST AVAILABLE COPY

[Patent number]	2113492
[Date of registration]	21.11.1996
[Number of appeal against examiner's decision of rejection]	
[Date of requesting appeal against examiner's decision of rejection]	
[Date of extinction of right]	

* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

- 1.This document has been translated by computer. So the translation may not reflect the original precisely.
- 2.**** shows the word which can not be translated.
- 3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The tip of the protection film drawn from the original fabric roll The film maintenance device which can be held horizontally, The film withdrawal mechanism pulls out horizontally and it runs by the chuck in support of the tip of the protection film held by this film maintenance device, While supporting the base of the pulled-out protection film by the chuck, a film withdrawal mechanism and the film support transport station it can run in this direction, The cut device in which the protection film by which cash-drawer support was carried out is cut crosswise between a film maintenance device and a film support transport station, Protection film attachment equipment to the car characterized by having the elevator style which makes it go up and down the film withdrawal mechanism which stretched and had the cut protection film, and a film support transport station.

[Translation done.]

(19) 日本国特許庁 (J P)

(12) 公 開 特 許 公 報 (A)

(11) 特許出願公開番号

特開平6-255873

(43) 公開日 平成6年(1994)9月13日

(51) Int.Cl. ⁵	識別記号	庁内整理番号	F I	技術表示箇所
B 6 5 H 35/07	R	9037-3F		
B 2 9 C 63/02		8823-4F		
B 6 5 B 41/04		9339-3E		
61/06		9146-3E		

審査請求 有 請求項の数 1 F D (全 7 頁)

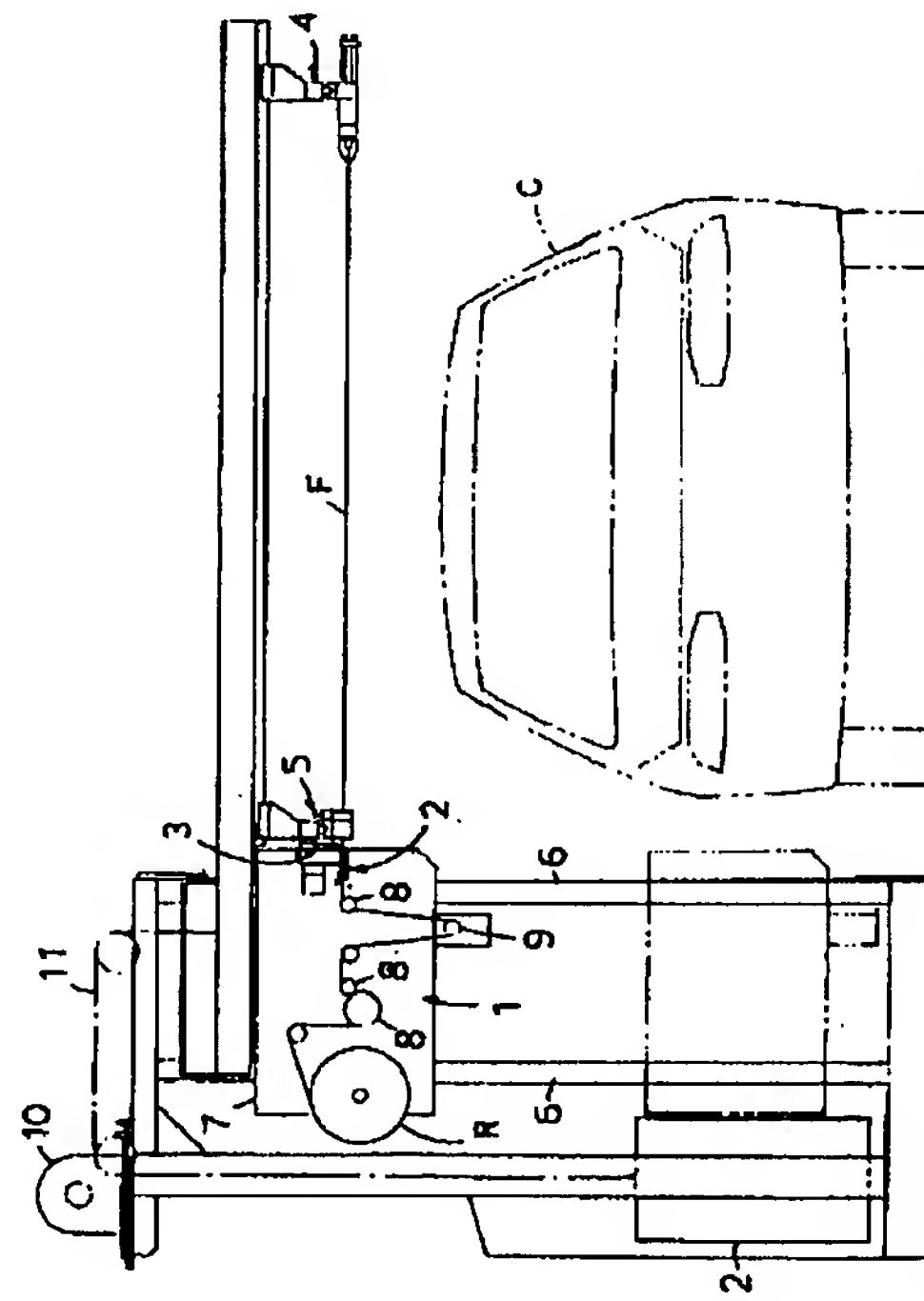
(21) 出願番号	特願平4-353234	(71) 出願人	000003964 日東電工株式会社 大阪府茨木市下穂積1丁目1番2号
(22) 出願日	平成4年(1992)12月10日	(71) 出願人	000001409 関西ペイント株式会社 兵庫県尼崎市神崎町33番1号
		(72) 発明者	新垣 昇 大阪府茨木市下穂積1丁目1番2号 日東電工株式会社内
		(72) 発明者	寺澤 秀夫 神奈川県逗子市小坪2-8-21
		(74) 代理人	弁理士 杉谷 勉

(54) 【発明の名称】 車両等への保護フィルム貼付け装置

(57) 【要約】

【目的】 車両の塗装面に保護フィルムを高効率で貼付けることのできる装置を提供する。

【構成】 原反ロールRから導出した保護フィルムFの先端を水平に保持するフィルム保持機構2と、前記保持された保護フィルムFの先端を複数のチャック28で支持して水平に引出し走行するフィルム引出し機構4と、引出された保護フィルムFの基部の左右両端部をチャック30で支持するとともにフィルム引出し機構4と同方向に走行可能なフィルム支持移送機構5と、引き出された保護フィルムFをフィルム保持機構2とフィルム支持移送機構5との間で切断するカット機構3と、フィルム引出し機構4とフィルム支持移送機構5とを昇降させる機構とを装備し、引き出し切断した定尺の保護フィルムFをフィルム引出し機構4とフィルム支持移送機構5とで張り持って下降させ、車両Cに貼付ける。



【特許請求の範囲】

【請求項1】 原反ロールから導出した保護フィルムの先端を水平に保持可能なフィルム保持機構と、該フィルム保持機構で保持された保護フィルムの先端をチャックで支持して水平に引出し走行するフィルム引出し機構と、引出された保護フィルムの基部をチャックで支持するとともにフィルム引出し機構と同方向に走行可能なフィルム支持移送機構と、引出し支持された保護フィルムをフィルム保持機構とフィルム支持移送機構との間において幅方向に切断するカット機構と、切断した保護フィルムを張り持ったフィルム引出し機構とフィルム支持移送機構とを昇降させる昇降機構とを備えたことを特徴とする車両等への保護フィルム貼付け装置。

【発明の詳細な説明】

【0001】

【産業上の利用分野】 本発明は、完成した車両（主として乗用車）がユーザーに渡るまでの輸送および保管中に表面塗装が煤煙・埃・鉄粉さび・酸性雨などによる汚染、鳥虫糞による浸食、あるいは擦り傷などのダメージを受けるのを回避するために、車両のルーフ、ボンネットおよびトランクリッドなどに保護フィルムを貼付ける装置に関する。

【0002】

【従来の技術】 従来、車両の表面塗装を一時的に保護する手段としてはパラフィンワックスを塗布するのが一般的であるが、保護機能が充分でないこと、および、パラフィンワックスを除去する場合には有機溶剤が必要となり、除去設備の排水規制に対応する必要があることなどの理由から、新しい保護手段の開発が望まれ、このような要望に対応して、車両の塗装面に貼付ける保護フィルムが開発されるに至った。

【0003】

【発明が解決しようとする課題】 この保護フィルムは、旧来の保護剤塗布に比較して塗装保護機能が格段に高く、貼付けおよび剥離が簡単に行うことができ、かつ、除去作業工程を含むトータルコストが安価であり、その実用上の効果は多大であるが、フィルム貼付けが人手による（具体的には、フィルムの四隅を4人の作業者が把持して貼り付けている）ものであったために、フィルム貼付け作業性が低いものとなっていた。

【0004】 本発明は、この保護フィルムを高効率で簡単迅速に車体に貼付け処理できる装置を提供することを目的としてなされたものである。

【0005】

【課題を解決するための手段】 上記目的を達成するために、本発明は次のような構成を採る。すなわち、本発明に係る車両への保護フィルム貼付け装置は、原反ロールから導出した保護フィルムの先端を水平に保持可能なフィルム保持機構と、フィルム保持機構で保持された保護フィルムの先端をチャックで支持して水平に引出し走行

するフィルム引出し機構と、引出された保護フィルムの基部をチャックで支持するとともにフィルム引出し機構と同方向に走行可能なフィルム支持移送機構と、引出し支持された保護フィルムをフィルム保持機構とフィルム支持移送機構との間において幅方向に切断するカット機構と、切断した保護フィルムを張り持ったフィルム引出し機構とフィルム支持移送機構とを昇降させる昇降機構とを装備してなる。

【0006】

【作用】 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000

【0007】

【実施例】 図1ないし図3は本発明に係る保護フィルム貼付け装置の一実施例の全体正面図、全体平面図、および、全体側面図である。この保護フィルム貼付け装置は、基本的にはフィルム供給部1、フィルム保持機構2、カット機構3、フィルム引出し機構4、フィルム支持移送機構5、および、これらの駆動機構から構成されている。

【0008】 フィルム供給部1は、立設された一対のガイドレール6に沿って昇降可能な可動フレーム7に装備されており、原反ロールRから導出した保護フィルムFをガイドローラ8群およびダンサローラ9を介して案内して前記フィルム保持機構2に水平姿勢で供給するように構成されている。前記可動フレーム7はモータ10によって巻き上げおよび巻き下げ操作されるチェーン11の一端に連結され、また、このチェーン11の他端にはバランスウエイト12が連結されている。

【0009】 フィルム保持機構2は、図4および図5に

示すように、前記可動フレーム7の前部において左右水平に横架固定された上部ガイド板13と、これに対向する下部可動ガイド板14とからなり、下部可動ガイド板14を連結した揺動アーム15をシリンダ16によって揺動駆動することで、上部ガイド板13と下部可動ガイド板14の間に挿通した保護フィルムFを挟持して水平に固定保持することができるように構成されている。また、図6に示すように、上部ガイド板13と下部可動ガイド板14の前縁複数箇所には切り欠き17が形成されており、この切り欠き17が後述するフィルム引出し機構4によるフィルム掴み箇所となっている。

【0010】カット機構3は、図5および図6に示すように、上記フィルム保持機構2における上部ガイド板13と下部可動ガイド板14の前縁直前箇所の上に配備されており、ガイドレール18に沿って水平横移動可能な可動台19にシリンダ20を介して上下動可能にカタホルダ21を装着し、可動台19に連結したベルト22をモータ23によって水平に正逆駆動回転することで、カタホルダ21に装着した切刃24を正逆に水平移動させるように構成されている。

【0011】フィルム引出し機構4およびフィルム支持移送機構5は、前記可動フレーム7から前方に片持ち状に延出したビーム25に沿って前後動可能に装着されている。フィルム引出し機構4は、ビーム25の下面に装備されたガイドレール26に沿って移動可能な横長の可動枠27に上下に開閉する3組のチャック28を装備して構成されており、このチャック28が前記フィルム保持機構2におけるガイド板13、14の前縁複数箇所に形成した切り欠き17に対応して配置されている。

【0012】また、フィルム支持移送機構5は、前記ガイドレール26に沿って移動可能な横長の可動枠29に上下に開閉する左右一對のチャック30を左右に進退可能に装備して構成されており、このチャック30が、フィルム引出し機構4によって引き出された保護フィルムFの左右端を掴むように構成されている。

【0013】なお、前記可動枠27、29はビーム25内に巻回配備された2本のベルト（図示せず）に夫々連結されており、各ベルトを正逆に回転駆動することで、フィルム引出し機構4およびフィルム支持移送機構5を独立して前後進することができるようになっている。また、各チャック28、30には、掴んだ保護フィルムFを張り持ち支持できるように弾性的に進退可能に構成されている。

【0014】本実施例の保護フィルム貼付け装置は以上のように構成されたものであり、以下にそのフィルム貼付け作動を図7および図8に基づいて説明する。

(1) 先ず、原反ロールRから保護フィルムFを導出してその先端をフィルム保持機構2に供給して上部ガイド板13と下部可動ガイド板14の間に挟持固定する。また、ビーム25の下方所定位置に対象となる車両Cを配

備する。なお、ここで使用される保護フィルムFの下面は粘着面となっている。

【0015】(2) 図7(a)に示すように、フィルム引出し機構4を後退移動（図上では左方移動）させる。

【0016】(3) 図7(b)に示すように、フィルム保持機構2の切り欠き17箇所において保護フィルムFをチャック28で掴ませる。

【0017】(4) 図7(c)に示すように、下部可動ガイド板14を下降させてフィルム挟持を解除し、フィルム引出し機構4を所定位置に向けて前進させる。

【0018】(5) 図8(d)に示すように、所定長さのフィルム引出しが完了すると、下部可動ガイド板14を上昇させて再び保護フィルムFを挟持固定し、原点位置（最左方位置）にあるフィルム支持移送機構5の各チャック30を対向進出させて、引き出された保護フィルムFの基部左右端を掴ませるとともに、カット機構3のカッタホルダ21を保護フィルム走行面より下方まで下降させた後、可動台19を前進走行させて、フィルム保持機構2とフィルム支持移送機構5との間で保護フィルムFを幅方向に切断する。これによって、フィルム引出し機構4とフィルム支持移送機構5との間に所定寸法の保護フィルムFが張り持たれる。

【0019】(6) 図8(e)に示すように、フィルム引出し機構4とフィルム支持移送機構5とを同調前進させて、待機している車両Cの上方に移動させる。

【0020】(7) 図8(f)に示すように、車両Cに対する保護フィルムFの位置決めがなされると、可動フレーム7を下降させて、フィルム引出し機構4とフィルム支持移送機構5とを同調下降させ、フィルム引出し機構4とフィルム支持移送機構5とに張り持たせた保護フィルムFを車両Cのルーフあるいはボンネット上に貼付ける。

【0021】(8) 次に、フィルム引出し機構4とフィルム支持移送機構5の各チャック28、30の掴みを解除した後、可動フレーム7を元の高さまで上昇させるとともに、フィルム支持移送機構5を原点位置に復帰後退させる。

【0022】以上で、1回の貼付け作動が完了し、以後上記作動を適当回数繰り返して、車両Cの所定箇所への保護フィルム貼付けを行う。上述の貼付け装置で車両Cに保護フィルムが貼り付けられた後、例えば先端部に回転ローラが弾性的に配備されたロボットアーム等を使って、フィルムの上を前記回転ローラで押圧することにより、保護フィルムと車両Cとの密着を完全なものにする。

【0023】なお、上記実施例では、フィルム保持機構2でのフィルム固定保持手段として機械的な挟持方式を採用しているが、真空吸着方式とすることも可能である。また、フィルム引出し機構4とフィルム支持移送機構5の各チャック28、30を真空吸着方式で実施する

5

ことも可能である。また、カット機構3の形態も、固定の切刃24を走行させる方式の他に、円板切刃を走行させる方式、幅広の固定受刃に対して幅広の切刃を昇降させる剪断方式、熱線カット方式、等の各種切断方式を適宜選択して実施することができる。

【0024】

【発明の効果】以上の説明から明らかなように、本発明によれば、保護フィルムの定尺引出し、切断、および、車体への貼付けを人手を必要とすることなく全自動で高能率で行うことができるようになった。

【図面の簡単な説明】

【図1】本発明に係る車両への保護フィルム貼付け装置の一実施例の全体正面図である。

【図2】実施例装置の全体平面図である。

【図3】実施例装置の全体側面図である。

【図4】要部の正面図である。

6

【図5】フィルム保持機構とカット機構の側面図である。

【図6】フィルム保持機構とカット機構の要部斜視図である。

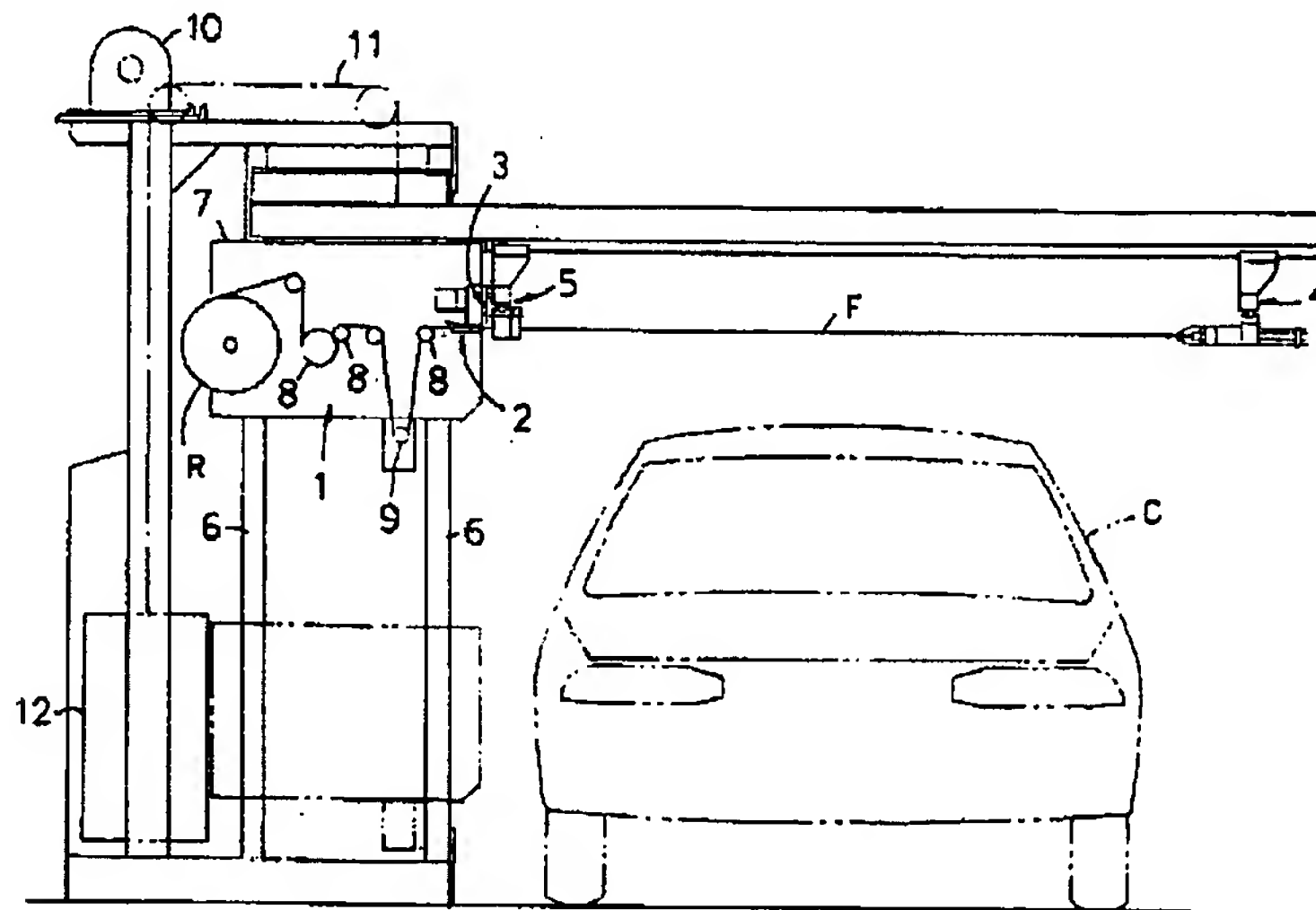
【図7】貼付け処理工程図である。

【図8】貼付け処理工程図である。

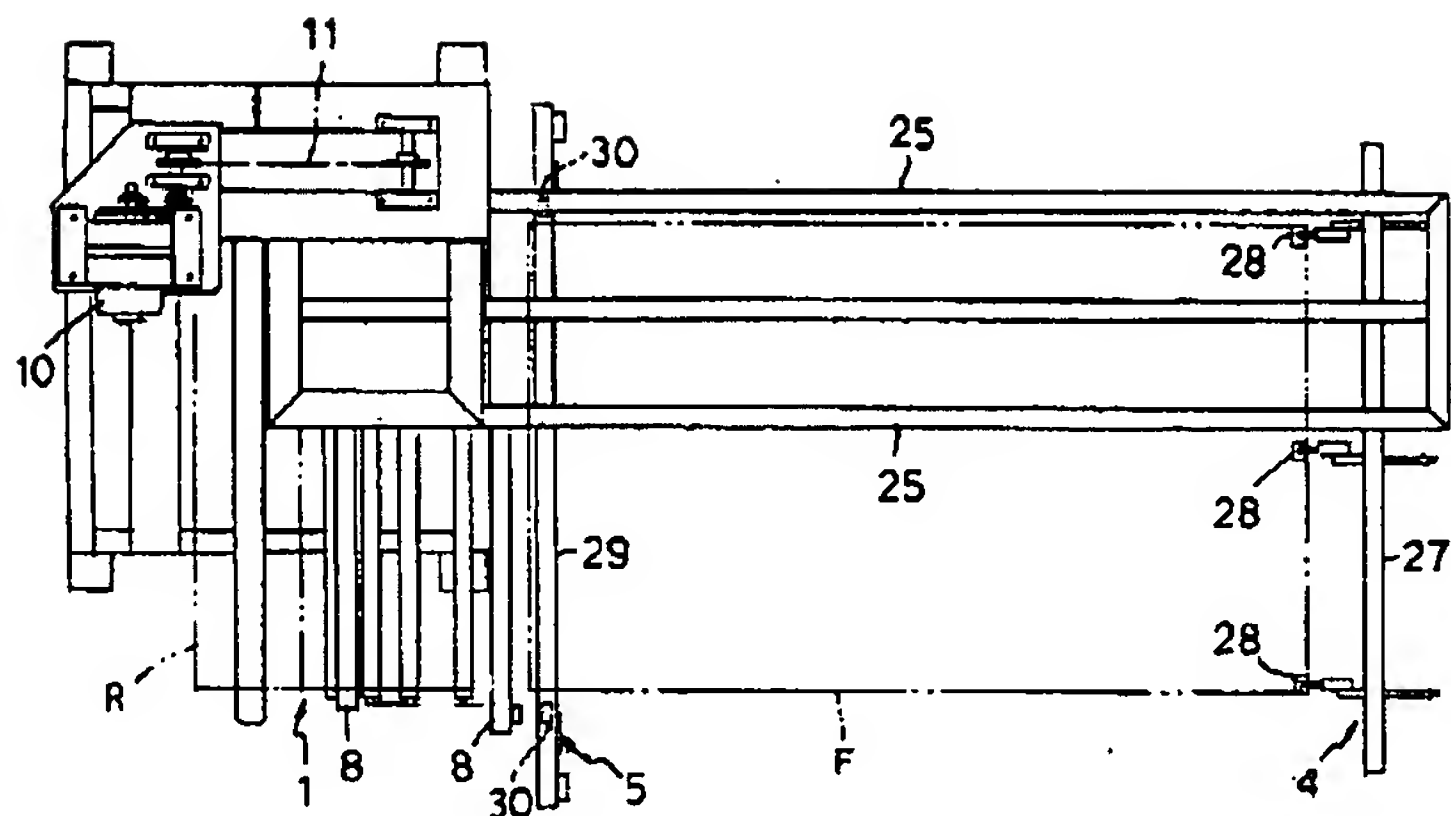
【符号の説明】

- | | |
|----|------------|
| 2 | フィルム保持機構 |
| 3 | カット機構 |
| 4 | フィルム引出し機構 |
| 5 | フィルム支持移送機構 |
| 28 | チャック |
| 30 | チャック |
| F | 保護フィルム |
| R | 原反ロール |

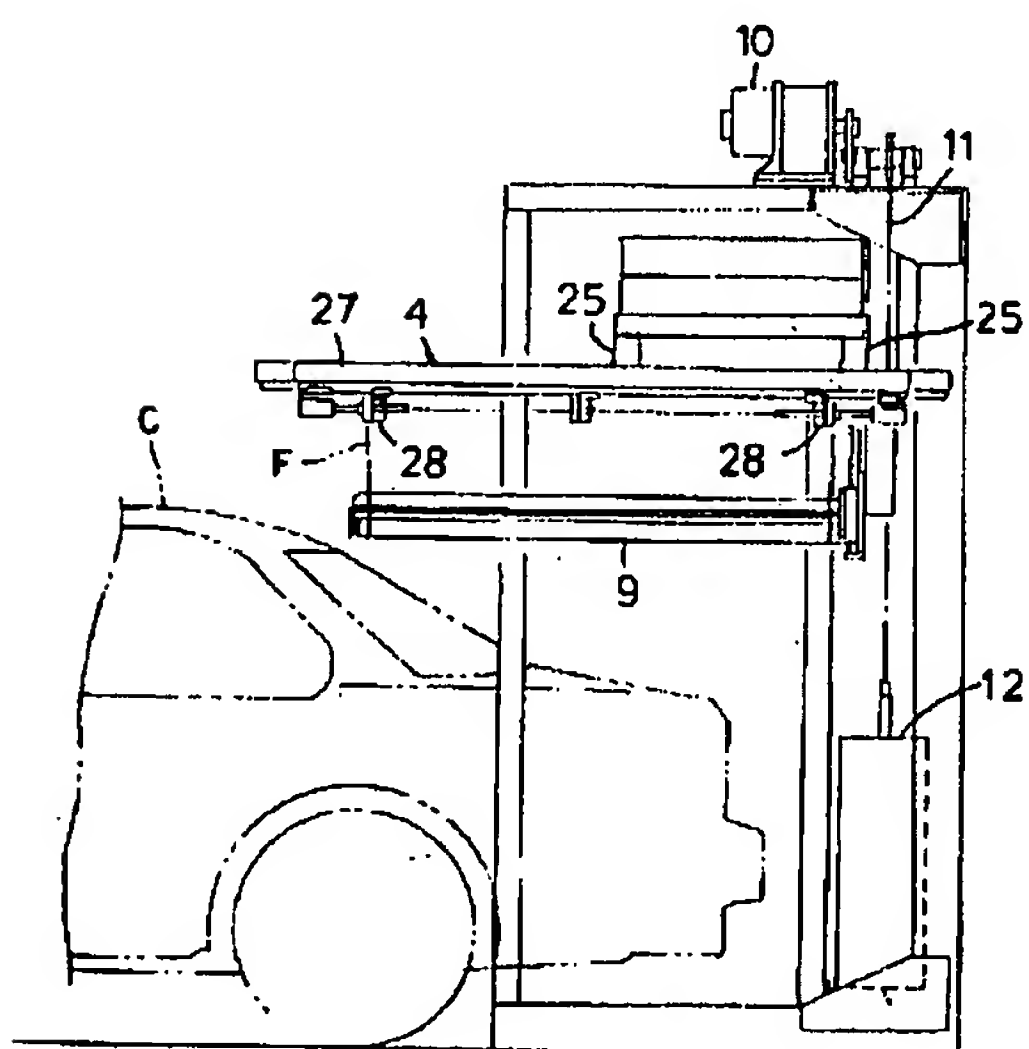
【図1】



【図2】



【図3】



【図7】

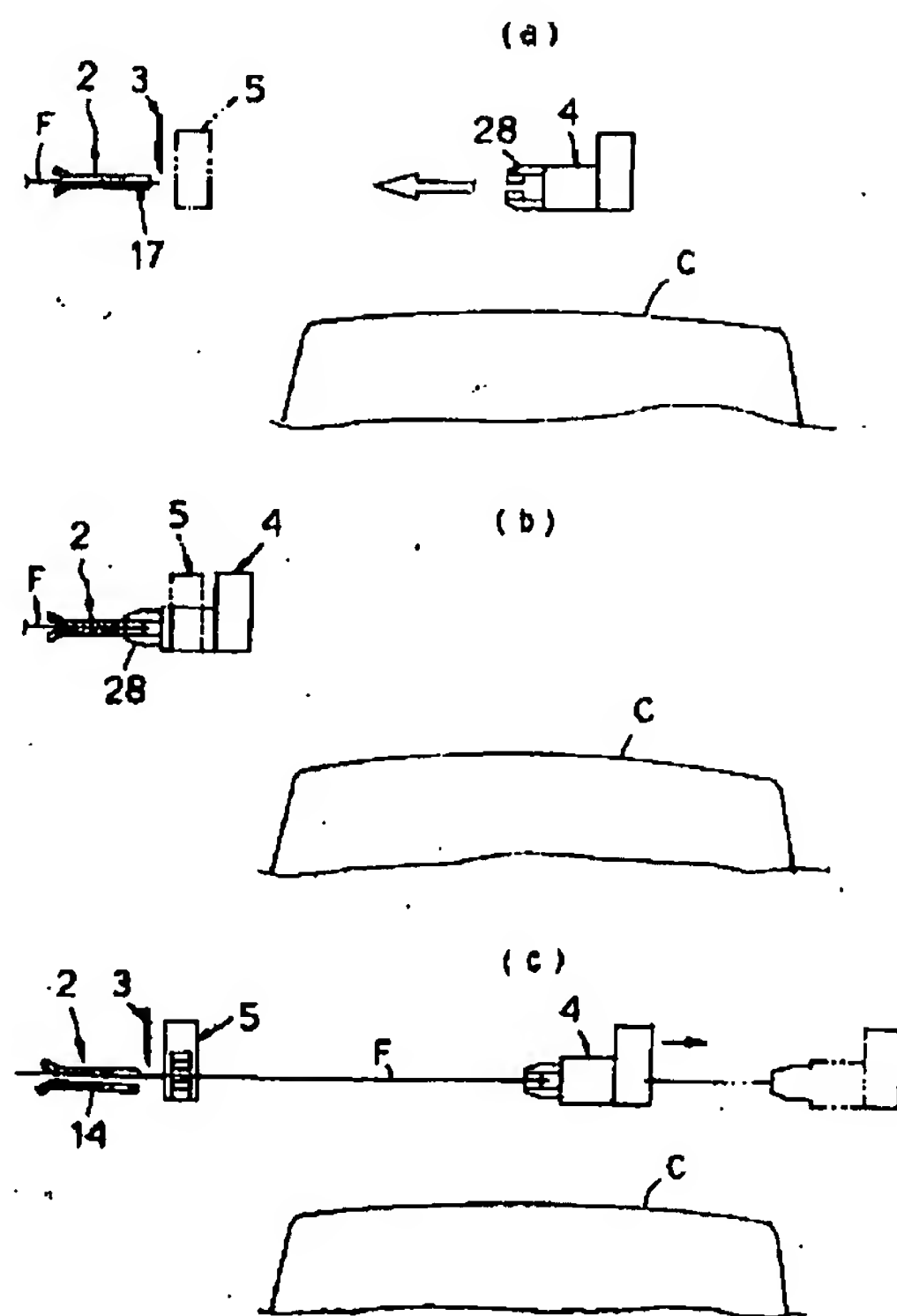


Fig. 1 is a perspective view of a mechanical assembly 10. It features a main body 1 with a handle 2 and a control lever 3. The assembly includes a series of rollers 14 and 15, and a vertical support structure 7. A force F is applied to the handle 2.

* NOTICES *

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the equipment which sticks a protection film on a roof, a bonnet, a trunk lid, etc. of a car, in order to avoid that surface coating receives damages, such as contamination by soot, dust, the iron powder rust, acid rain, etc., corrosion by *****, or an abrasion, during transportation until the completed car (mainly passenger car) passes into a user, and storage.

[0002]

[Description of the Prior Art] Although it was common to have applied paraffin wax as a means to protect surface coating of a car temporarily, conventionally, when a protection feature removed not enough and paraffin wax, the organic solvent was needed, development of a new safeguard is desired from the reasons of it being necessary to correspond to wastewater regulation of a removal facility etc., and the protection film stuck on the painted surface of a car came to be developed corresponding to such a request.

[0003]

[Problem(s) to be Solved by the Invention] although this protection film has an alike and high paint protection feature as compared with the conventional protective agent spreading, the total cost in which attachment and exfoliation can carry out easily, and include a removal routing is cheap and that practical effectiveness is great Since film attachment was what is depended on a help (four operators are specifically grasping and sticking the four corners of a film), film attachment workability became low.

[0004] This invention is made for the purpose of offering the equipment which can stick and process this protection film into a car body simply quickly in high efficiency.

[0005]

[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention takes the following configurations. Namely, the protection film attachment equipment to the car concerning this invention The tip of the protection film drawn from the original fabric roll The film maintenance device which can be held horizontally, The film withdrawal mechanism pulls out horizontally and it runs by the chuck in support of the tip of the protection film held by the film maintenance device, While supporting the base of the pulled-out protection film by the chuck, a film withdrawal mechanism and the film support transport station it can run in this direction, It comes to equip the elevator style which makes it go up and down the cut device in which the protection film by which cash-drawer support was carried out is cut crosswise between a film maintenance device and a film support transport station, and the film withdrawal mechanism which stretched and had the cut protection film and a film support transport station.

[0006]

[Function] First, it draws by using the adhesive face as an inferior surface of tongue, and the protection film of an original fabric roll is set so that the tip may be held by the film maintenance device. Next, the tip of the protection film held by the film maintenance device is supported by the chuck of a film withdrawal mechanism, and maintenance discharge of the film maintenance device is carried out, and it

is made to pull out and run a film withdrawal mechanism to a predetermined location. Next, where fixed maintenance of the pulled-out protection film is again carried out by the film maintenance device, the direct poor part (base of a protection film) of a film maintenance device is supported by the chuck of a film support transport station, a cut device is operated, and a protection film is cut between a film maintenance device and a film support transport station. Between a film withdrawal mechanism and a film support transport station, the protection film of predetermined die length will stretch and will be held by this. Next, align, advance a film withdrawal mechanism and a film support transport station, it is made to move to the upper part location of the car body which makes the position have stood by beforehand, and the protection film with which positioning was checked and which was made to carry out post-downward actuation, and was stretched and held among both is stuck on the roof of a car body, or a bonnet. After film attachment finishes, a film withdrawal mechanism and a film support transport station cancel film support, and go up, and a film withdrawal mechanism carries out retreat transit of them for it towards a film maintenance device for the following film cash drawer while a film support transport station carries out return retreat at a zero.

[0007]

[Example] Drawing 1 thru/or drawing 3 are the whole one example front views, whole top views, and whole side elevations of the protection film attachment equipment concerning this invention. This protection film attachment equipment consists of the film feed zone 1, the film maintenance device 2, the cut device 3, a film withdrawal mechanism 4, film support transport stations 5, and these drives fundamentally.

[0008] Along with the guide rail 6 of the set-up pair, the movable frame 7 which can go up and down is equipped with the film feed zone 1, and it is constituted so that the protection film F drawn from the original fabric roll R may be guided through guide-idler 8 group and a dancer roller device 9 and said film maintenance device 2 may be supplied by the horizontal position. Said movable frame 7 is connected with the end of the chain 11 by which winding up and volume lowering actuation are carried out by the motor 10, and the balance weight 12 is connected with the other end of this chain 11.

[0009] The up guide plate 13 by which horizontal-bridging immobilization was carried out in the anterior part of said movable frame 7 at the right-and-left horizontal as the film maintenance device 2 was shown in drawing 4 and drawing 5, The swinging arm 15 which consisted of a lower movable guide plate 14 which counters this, and connected the lower movable guide plate 14 by carrying out a rocking drive in a cylinder 16 It is constituted so that the protection film F inserted in between the up guide plate 13 and the lower movable guide plate 14 may be pinched and fixed maintenance can be carried out horizontally. Moreover, as shown in drawing 6, notching 17 is formed in first transition two or more parts of the up guide plate 13 and the lower movable guide plate 14, and it has become a film grip part by the film withdrawal mechanism 4 which this notching 17 mentions later.

[0010] The cut device 3 is arranged above the just before [first transition] part of the up guide plate 13 in the above-mentioned film maintenance device 2, and the lower movable guide plate 14, as shown in drawing 5 and drawing 6. The belt 22 which equipped with the cutter holder 21 the movable base 19 in which level horizontal migration is possible possible [vertical movement] through the cylinder 20 along with the guide rail 18, and was connected with the movable base 19 by carrying out forward reverse drive rotation horizontally by the motor 23 It is constituted so that horizontal migration of the cutting edge 24 with which the cutter holder 21 was equipped may be carried out to right reverse.

[0011] Along with the beam 25 which extended in the shape of a cantilever, it is ahead equipped with the film withdrawal mechanism 4 and the film support transport station 5 possible [longitudinal slide movement] from said movable frame 7. Along with the guide rail 26 with which the inferior surface of tongue of a beam 25 was equipped, the film withdrawal mechanism 4 equips the movable oblong movable frame 27 with 3 sets of chucks 28 opened and closed up and down, and is constituted, and this chuck 28 is arranged corresponding to the notching 17 formed in first transition two or more parts of the guide plates 13 and 14 in said film maintenance device 2.

[0012] Moreover, along with said guide rail 26, the film support transport station 5 equips the chuck 30 of a Uichi Hidari pair opened and closed up and down in the movable oblong movable frame 29 possible

[an attitude right and left], and is constituted, and this chuck 30 is constituted so that the right-and-left edge of the protection film F pulled out by the film withdrawal mechanism 4 may be held.

[0013] In addition, said good repere mobiles 27 and 29 are connected with two belts (not shown) by which winding disposition was carried out into the beam 25, respectively, and the film withdrawal mechanism 4 and the film support transport station 5 can be *(ed) now independently by forward, on the contrary carrying out a rotation drive for each belt approximately. Moreover, it is elastically constituted by each chucks 28 and 30 possible [an attitude] so that the held protection film F may be stretched and can be had and supported.

[0014] The protection film attachment equipment of this example is constituted as mentioned above, and explains the film attachment actuation based on drawing 7 and drawing 8 below.

(1) First, draw the protection film F from the original fabric roll R, supply the tip to the film maintenance device 2, and carry out pinching immobilization between the up guide plate 13 and the lower movable guide plate 14. Moreover, the target car C is arranged in the lower part predetermined location of a beam 25. In addition, the inferior surface of tongue of the protection film F used here is an adhesive face.

[0015] (2) As shown in drawing 7 (a), carry out retreat migration (a drawing top shift to left) of the film withdrawal mechanism 4.

[0016] (3) As shown in drawing 7 (b), make it grasp the protection film F by the chuck 28 in 17 notching of the film maintenance device 2.

[0017] (4) As shown in drawing 7 (c), drop the lower movable guide plate 14, cancel film pinching, turn the film withdrawal mechanism 4 to a predetermined location, and advance it.

[0018] (5) If the film cash drawer of predetermined die length is completed as shown in drawing 8 (d) Raise the lower movable guide plate 14 and pinching immobilization of the protection film F is carried out again. While making it grasp the base right-and-left edge of the protection film F which was made to carry out opposite advance of each chuck 30 of the film support transport station 5 in a home position (method location of the leftmost), and was pulled out After dropping the cutter holder 21 of the cut device 3 from a protection film transit side to a lower part, advance transit of the movable base 19 is carried out, and the protection film F is cut crosswise between the film maintenance device 2 and the film support transport station 5. this -- the film withdrawal mechanism 4 and the film support transport station 5 -- ** -- in between, the protection film F of a predetermined dimension stretches and is held.

[0019] (6) Carry out alignment advance of the film withdrawal mechanism 4 and the film support transport station 5, and make it move above the car C which is standing by, as shown in drawing 8 (e).

[0020] (7) If positioning of the protection film F to Car C is made as shown in drawing 8 (f), the movable frame 7 is dropped, the alignment descent of the film withdrawal mechanism 4 and the film support transport station 5 will be carried out, and the protection film F stretched and given to the film withdrawal mechanism 4 and the film support transport station 5 will be stuck on the roof of Car C, or a bonnet.

[0021] (8) Next, after canceling a grip of each chucks 28 and 30 of the film withdrawal mechanism 4 and the film support transport station 5, while raising the movable frame 7 to the original height, make a home position carry out return retreat of the film support transport station 5.

[0022] Above, one attachment actuation is completed, the above-mentioned actuation is repeated the number of suitable times henceforth, and protection film attachment in the predetermined part of Car C is performed. After a protection film is stuck on Car C with above-mentioned attachment equipment, for example, when a rotation roller presses a film top with said rotation roller using the robot arm arranged elastically to a point, adhesion with a protection film and Car C is made perfect.

[0023] In addition, although the pinching method mechanical as a film fixed maintenance means in the film maintenance device 2 is adopted in the above-mentioned example, considering as a vacuum adsorption method is also possible. Moreover, it is also possible to carry out each chucks 28 and 30 of the film withdrawal mechanism 4 and the film support transport station 5 by the vacuum adsorption method. moreover, everything but the method with which the gestalt of the cut device 3 also makes it run the cutting edge 24 of immobilization -- a disk -- various cutting methods, such as a method which

makes it run a cutting edge, a shear method which makes it go up and down a broad cutting edge to a broad fixed fixed blade, and a heat ray cut method, can be chosen suitably, and can be carried out.

[0024]

[Effect of the Invention] According to this invention, without needing a help, it can be full automatic and the standard size cash drawer of a protection film, cutting, and attachment into a car body could be performed in high efficiency so that clearly from the above explanation.

[Translation done.]

* NOTICES *

JPO and NCIPPI are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

TECHNICAL FIELD

[Industrial Application] This invention relates to the equipment which sticks a protection film on a roof, a bonnet, a trunk lid, etc. of a car, in order to avoid that surface coating receives damages, such as contamination by soot, dust, the iron powder rust, acid rain, etc., corrosion by *****, or an abrasion, during transportation until the completed car (mainly passenger car) passes into a user, and storage.

[Translation done.]

* NOTICES *

JPO and NCIPPI are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

PRIOR ART

[Description of the Prior Art] Although it was common to have applied paraffin wax as a means to protect surface coating of a car temporarily, conventionally, when a protection feature removed not enough and paraffin wax, the organic solvent was needed, development of a new safeguard is desired from the reasons of it being necessary to correspond to wastewater regulation of a removal facility etc., and the protection film stuck on the painted surface of a car came to be developed corresponding to such a request.

[Translation done.]

* NOTICES *

JPO and NCIPPI are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

EFFECT OF THE INVENTION

[Effect of the Invention] According to this invention, without needing a help, it can be full automatic and the standard size cash drawer of a protection film, cutting, and attachment into a car body could be performed in high efficiency so that clearly from the above explanation.

[Translation done.]

* NOTICES *

JPO and NCIPPI are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] although this protection film has an alike and high paint protection feature as compared with the conventional protective agent spreading, the total cost in which attachment and exfoliation can carry out easily, and include a removal routing is cheap and that practical effectiveness is great Since film attachment was what is depended on a help (four operators are specifically grasping and sticking the four corners of a film), film attachment workability became low. [0004] This invention is made for the purpose of offering the equipment which can stick and process this protection film into a car body simply quickly in high efficiency.

[Translation done.]

* NOTICES *

JPO and NCIPPI are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

MEANS

[Means for Solving the Problem] In order to attain the above-mentioned purpose, this invention takes the following configurations. Namely, the protection film attachment equipment to the car concerning this invention The tip of the protection film drawn from the original fabric roll The film maintenance device which can be held horizontally, The film withdrawal mechanism pulls out horizontally and it runs by the chuck in support of the tip of the protection film held by the film maintenance device, While supporting the base of the pulled-out protection film by the chuck, a film withdrawal mechanism and the film support transport station it can run in this direction, It comes to equip the elevator style which makes it go up and down the cut device in which the protection film by which cash-drawer support was carried out is cut crosswise between a film maintenance device and a film support transport station, and the film withdrawal mechanism which stretched and had the cut protection film and a film support transport station.

[Translation done.]

* NOTICES *

JPO and NCIP are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

EXAMPLE

[Example] Drawing 1 thru/or drawing 3 are the whole one example front views, whole top views, and whole side elevations of the protection film attachment equipment concerning this invention. This protection film attachment equipment consists of the film feed zone 1, the film maintenance device 2, the cut device 3, a film withdrawal mechanism 4, film support transport stations 5, and these drives fundamentally.

[0008] Along with the guide rail 6 of the set-up pair, the movable frame 7 which can go up and down is equipped with the film feed zone 1, and it is constituted so that the protection film F drawn from the original fabric roll R may be guided through guide-idler 8 group and a dancer roller device 9 and said film maintenance device 2 may be supplied by the horizontal position. Said movable frame 7 is connected with the end of the chain 11 by which winding up and volume lowering actuation are carried out by the motor 10, and the balance weight 12 is connected with the other end of this chain 11.

[0009] The up guide plate 13 by which horizontal-bridging immobilization was carried out in the anterior part of said movable frame 7 at the right-and-left horizontal as the film maintenance device 2 was shown in drawing 4 and drawing 5, The swinging arm 15 which consisted of a lower movable guide plate 14 which counters this, and connected the lower movable guide plate 14 by carrying out a rocking drive in a cylinder 16 It is constituted so that the protection film F inserted in between the up guide plate 13 and the lower movable guide plate 14 may be pinched and fixed maintenance can be carried out horizontally. Moreover, as shown in drawing 6, notching 17 is formed in first transition two or more parts of the up guide plate 13 and the lower movable guide plate 14, and it has become a film grip part by the film withdrawal mechanism 4 which this notching 17 mentions later.

[0010] The cut device 3 is arranged above the just before [first transition] part of the up guide plate 13 in the above-mentioned film maintenance device 2, and the lower movable guide plate 14, as shown in drawing 5 and drawing 6. The belt 22 which equipped with the cutter holder 21 the movable base 19 in which level horizontal migration is possible possible [vertical movement] through the cylinder 20 along with the guide rail 18, and was connected with the movable base 19 by carrying out forward reverse drive rotation horizontally by the motor 23 It is constituted so that horizontal migration of the cutting edge 24 with which the cutter holder 21 was equipped may be carried out to right reverse.

[0011] Along with the beam 25 which extended in the shape of a cantilever, it is ahead equipped with the film withdrawal mechanism 4 and the film support transport station 5 possible [longitudinal slide movement] from said movable frame 7. Along with the guide rail 26 with which the inferior surface of tongue of a beam 25 was equipped, the film withdrawal mechanism 4 equips the movable oblong movable frame 27 with 3 sets of chucks 28 opened and closed up and down, and is constituted, and this chuck 28 is arranged corresponding to the notching 17 formed in first transition two or more parts of the guide plates 13 and 14 in said film maintenance device 2.

[0012] Moreover, along with said guide rail 26, the film support transport station 5 equips the chuck 30 of a Uichi Hidari pair opened and closed up and down in the movable oblong movable frame 29 possible [an attitude right and left], and is constituted, and this chuck 30 is constituted so that the right-and-left edge of the protection film F pulled out by the film withdrawal mechanism 4 may be held.

[0013] In addition, said good repere mobiles 27 and 29 are connected with two belts (not shown) by which winding disposition was carried out into the beam 25, respectively, and the film withdrawal mechanism 4 and the film support transport station 5 can be *(ed) now independently by forward, on the contrary carrying out a rotation drive for each belt approximately. Moreover, it is elastically constituted by each chucks 28 and 30 possible [an attitude] so that the held protection film F may be stretched and can be had and supported.

[0014] The protection film attachment equipment of this example is constituted as mentioned above, and explains the film attachment actuation based on drawing 7 and drawing 8 below.

(1) First, draw the protection film F from the original fabric roll R, supply the tip to the film maintenance device 2, and carry out pinching immobilization between the up guide plate 13 and the lower movable guide plate 14. Moreover, the target car C is arranged in the lower part predetermined location of a beam 25. In addition, the inferior surface of tongue of the protection film F used here is an adhesive face.

[0015] (2) As shown in drawing 7 (a), carry out retreat migration (a drawing top shift to left) of the film withdrawal mechanism 4.

[0016] (3) As shown in drawing 7 (b), make it grasp the protection film F by the chuck 28 in 17 notching of the film maintenance device 2.

[0017] (4) As shown in drawing 7 (c), drop the lower movable guide plate 14, cancel film pinching, turn the film withdrawal mechanism 4 to a predetermined location, and advance it.

[0018] (5) If the film cash drawer of predetermined die length is completed as shown in drawing 8 (d) Raise the lower movable guide plate 14 and pinching immobilization of the protection film F is carried out again. While making it grasp the base right-and-left edge of the protection film F which was made to carry out opposite advance of each chuck 30 of the film support transport station 5 in a home position (method location of the leftmost), and was pulled out After dropping the cutter holder 21 of the cut device 3 from a protection film transit side to a lower part, advance transit of the movable base 19 is carried out, and the protection film F is cut crosswise by Hazama of the film maintenance device 2 and the film support transport station 5. this -- the film withdrawal mechanism 4 and the film support transport station 5 -- ** -- in between, the protection film F of a predetermined dimension stretches and is held.

[0019] (6) Carry out alignment advance of the film withdrawal mechanism 4 and the film support transport station 5, and make it move above the car C which is standing by, as shown in drawing 8 (e).

[0020] (7) If positioning of the protection film F to Car C is made as shown in drawing 8 (f), the movable frame 7 is dropped, the alignment descent of the film withdrawal mechanism 4 and the film support transport station 5 will be carried out, and the protection film F stretched and given to the film withdrawal mechanism 4 and the film support transport station 5 will be stuck on the roof of Car C, or a bonnet.

[0021] (8) Next, after canceling a grip of each chucks 28 and 30 of the film withdrawal mechanism 4 and the film support transport station 5, while raising the movable frame 7 to the original height, make a home position carry out return retreat of the film support transport station 5.

[0022] Above, one attachment actuation is completed, the above-mentioned actuation is repeated the number of suitable times henceforth, and protection film attachment in the predetermined part of Car C is performed. After a protection film is stuck on Car C with above-mentioned attachment equipment, for example, when a rotation roller presses a film top with said rotation roller using the robot arm arranged elastically to a point, adhesion with a protection film and Car C is made perfect.

[0023] In addition, although the pinching method mechanical as a film fixed maintenance means in the film maintenance device 2 is adopted in the above-mentioned example, considering as a vacuum adsorption method is also possible. Moreover, it is also possible to carry out each chucks 28 and 30 of the film withdrawal mechanism 4 and the film support transport station 5 by the vacuum adsorption method. moreover, everything but the method with which the gestalt of the cut device 3 also makes it run the cutting edge 24 of immobilization -- a disk -- various cutting methods, such as a method which makes it run a cutting edge, a shear method which makes it go up and down a broad cutting edge to a

broad fixed fixed blade, and a heat ray cut method, can be chosen suitably, and can be carried out.

[Translation done.]

*** NOTICES ***

JPO and NCIPi are not responsible for any damages caused by the use of this translation.

1. This document has been translated by computer. So the translation may not reflect the original precisely.
2. **** shows the word which can not be translated.
3. In the drawings, any words are not translated.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the whole one example front view of the protection film attachment equipment to the car concerning this invention.

[Drawing 2] It is the whole example equipment top view.

[Drawing 3] It is the whole example equipment side elevation.

[Drawing 4] It is the front view of an important section.

[Drawing 5] It is the side elevation of a film maintenance device and a cut device.

[Drawing 6] It is the important section perspective view of a film maintenance device and a cut device.

[Drawing 7] It is attachment processing process drawing.

[Drawing 8] It is attachment processing process drawing.

[Description of Notations]

2 Film Maintenance Device

3 Cut Device

4 Film Withdrawal Mechanism

5 Film Support Transport Station

28 Chuck

30 Chuck

F Protection film

R Original fabric roll

[Translation done.]